NOTES.

The Huxley Memorial Statue will be unveiled at the Natural History Museum on April 28, at 1.15 p.m. Sir J. D. Hooker, G.C.S.I., F.R.S., who was Huxley's life-long and most intimate friend, will present the statue on behalf of the subscribers, and H.R.H. the Prince of Wales will receive it on behalf of the Trustees of the British Museum. Invitations are being sent out to the subscribers, and seating accommodation is being prepared for about three hundred persons expected to attend; there will be additional accommodation for those who are content to stand in the galleries overlooking the ceremony. The statue, which is in white marble, is the work of Mr. O. Ford, R.A., and will be mounted on a marble pedestal, and placed under the arch of the first right-hand recess on entering the Hall of the Museum. This position has been decided upon after careful consideration, and trial with others, as fufilling the conditions of lighting, &c., which will enable the statue to be seen to the best advantage.

Invitations have been sent out for the first (or gentlemen's) soirée of the Royal Society, to be held on Wednesday, May 9.

The eighth "James Forrest" lecture of the Institution of Civil Engineers will be by Sir William Preece, K.C.B., F.R.S., on Monday, April 23, the subject being "The Relations between Electricity and Engineering." The lecture will be repeated on the afternoon of the following day.

Prof. W. Hittorf, professor of physics at Münster, has been elected a correspondant of the Paris Academy of Sciences, in succession to the late Prof. Wiedemann. The election of Sir George Stokes as Foreign Associate of the Academy left a vacancy for another correspondant in the section of physics, and Prof. Van der Waals has been elected to fill it.

The next meeting of the Physical Society will be held on April 27, at 8 p.m., at the Solar Physics Observatory, South Kensington, when Sir Norman Lockyer, K.C.B., will give a short account of the physical problems now being investigated at the Observatory, and their astronomical applications. If the night is fine, the 36-inch reflector, and 10-inch and 9-inch refractors, will be used for the observation or photography of celestial objects and their spectra. The large Apps-Spottiswoode coil and Rowland grating will also be shown in operation.

The following are among the lecture arrangements at the Royal Institution, after Easter:—Dr. Hugh Robert Mill, three lectures on studies in British geography; Dr. Alexander Hill, two lectures on brain tissue considered as the apparatus of thought; Prof. Dewar, four lectures on a century of chemistry in the Royal Institution; Prof. Stanley Lane-Poole, two lectures on Egypt in the Middle Ages; Dr. Alfred Hillier, two lectures on South Africa, past and future. The Friday evening meetings will be resumed on April 27, when a discourse will be given by the Right Hon. Lord Kelvin on nineteenth century clouds over the dynamical theory of heat and light; succeeding discourses will probably be given by Prof. T. E. Thorpe, Prof. J. A. Ewing, Mr. Francis Fox, Sir Henry Roscoe, and others.

On the recommendation of the Fire Brigade Committee, the London County Council have agreed to accept the offer of the Wireless Telegraph and Signal Company (Marconi system) to instal and maintain for a period of two years, in consideration of an annual payment of 50*l.*, the necessary electrical instruments to enable communication to be maintained between the fire-station at Streatham Green and a temporary sub-station in Mitcham Lane, Streatham.

Prof. A. R. Forsyth, F.R.S., has been elected a member of the Athenæum Club under the provisions of the rule which empowers the annual election of nine persons "of distinguished eminence in science, literature, the arts, or for public services."

The first of a series of four zoological lectures will be delivered in the Zoological Society's meeting-room on Thursday next, April 19, at 4.30 p.m. Mr. A. Smith Woodward will speak on the subject of the animals of Australia, and will discuss the difficult question of the origin of Australian fauna.

Dr. W. S. Church has been re-elected president of the Royal College of Physicians of London, by a practically unanimous vote.

The *British Medical Journal* states that, by a recent order of the French Army Medical Service, medical officers are directed to use injections of antitetanus serum in large and repeated doses in all cases of pronounced tetanus. This order is based on the fact that experience has shown that such injections have a favourable effect in many cases.

The exhibition of pictures by the National Record Association, at the rooms of the Royal Photographic Society, will close on Saturday, April 21. On Wednesday, April 25, Mr. F. H. Evans will inaugurate an exhibition of his photographs (mainly architectural) at 8 p.m. with an address. Tickets may be had on application to the secretary of the Society.

To afford an opportunity for observing the total solar eclipse of May 28, from the deck of a ship, the Orient Line have arranged to navigate the Royal Mail steamer *Ormuz* so as to bring the ship upon the central line of totality, off the coast of Portugal, at the time of the eclipse. The journey will be from London or Plymouth to Gibraltar or Marseilles, and the *Ormuz* will leave London on May 25. Passengers will be able to return from Gibraltar or Marseilles by sea, or can travel back from Marseilles overland. The complete journey can be made in fifteen days.

Science states that Princeton University will send a party to Wadesboro', North Carolina, to observe the eclipse of May 28, that place having been selected because it is the most easily accessible of the stations where the weather probabilities are equally good. The party will probably consist of Profs. Young, Brackett, Magie and Reed, Mr. McClenahan, Mr. Russell and Mr. Fisher, with perhaps one or two others. The work undertaken will be mainly spectroscopic, including particularly a determination, both photographic and visual, of the position of the corona line. A set of photographs of the corona will also be taken, and careful visual observations will be made to determine the relations between the corona and the solar prominences.

Sir Andrew Douglas Maclagan, whose death is announced, was born at Ayr on April 17, 1812. He was Surgeon-General to the Queen's Bodyguard, Scotland; vice-president of the Royal Society, Edinburgh; honorary member of the Royal Medical Society, Edinburgh; professor of medical jurisprudence and public health in Edinburgh University from 1862 to 1892, when he retired; president of the Royal College of Physicians, Edinburgh, 1884; and president of the Royal College of Surgeons, Edinburgh, 1859-60.

We have just received news of the death of Mr. George Highfield Morton, well known for his researches on the geology of Lancashire and North Wales. The first edition of his "Geology of the country around Liverpool" was published in 1863; a second edition, which included an account of the north of Flintshire, was issued in 1891, and an appendix to this work, with a geological map of the district, was published in 1897. Mr. Morton contributed many papers to the Liverpool Geological Society, of which he had been president; his more important researches being on the Glacial and Triassic deposits near Liverpool, and on the Lower Carboniferous rocks and fossils of North Wales. He was elected a Fellow of the Geological Society in 1858, and was awarded the Lyell medal in 1892. He was a constant attendant at Section C of the British Association, and was highly esteemed by all who knew him, as a quiet, unostentatious, but most zealous and enthusiastic worker. He died on March 30, aged seventy-three.

It was announced at the opening meeting of the Institution of Naval Architects last week, that the council have accepted an invitation from the president of the Association Technique Maritime, M. L. de Bussy, to take part in the International Congress of Naval Architects and Marine Engineers, which is to be held in connection with the Paris International Exhibition. To promote the success of this Congress, it has been determined not to hold a separate summer meeting of the Institution this year. An invitation has been received and accepted from the Lord Provost, Magistrates, and council of Glasgow, to visit that city in the year 1901. The council have awarded a gold medal to Mr. J. Bruhn for his paper on "The Stresses at the Discontinuities in a Ship's Structure," and a premium to Prof. W. E. Dalby for his paper, "The Balancing of Engines with special Reference to Marine Work." In the course of his presidential address, the Earl of Hopetoun referred to the necessity for restricting the employment of wood in all fighting ships. Many foreign nations are entirely abandoning the use of wooden decks and wood fittings in their military marines. Among the subjects of papers brought before the Institution were :—The action of bilge keels, by Prof. G. H. Bryan, F.R.S. ; changes and developments in the construction of ships for the mercantile marine during the last forty years, by Mr. B. Martell ; distribution of pressure due to flow round submerged surfaces, by Prof. Hele-Shaw, F.R.S. ; strength of elliptic sections under fluid pressure, by Captain W. Hovgaard ; mysterious fractures of steel shafts, by Signor R. Schanzer ; experimental method of ascertaining the rolling of ships on waves, by Captain G. Russo ; influence of depth of water on the resistance of ships, by Major G. Rota ; and the balancing of steam engines, by Herr Otto Schlick.

An interesting illustrated article upon the construction of the electric railway to the summit of the Jungfrau, and the electric locomotives in use upon the completed sections, appears in the *Engineering Magazine* (April). The total expense of boring the tunnel, which will be ten kilometres long when completed, is expected to be 200,000*l.* The method of boring is to pierce a series of holes about a metre deep with two electric drills, and then to explode cartridges in them. As the blasting operations can only take place about four times a day, the daily progress is comparatively small—only four metres. The débris passes into tipping waggons worked by an endless rope, and is emptied out at the nearest cross tunnel. At the entrance to the gallery there is a temporary building containing two three-phase 200-kilowatt transformers, reducing pressure from 7000 to 500 volts. The three-phase, low-tension currents thus obtained are used for driving the electric drills, working a ventilator to clear out the smoke after an explosion, and providing power to melt snow for the drills. When the tunnel reaches a height of above 3000 metres, it is expected that difficulties will be encountered on account of mountain sickness. At present the majority of the workmen employed are Italians, but above 3000 metres it is almost certain that they will have to be replaced by Swiss mountaineers. The last station of the railway will be about 66 metres below the summit, which is 4166 metres above sea-level, and the journey from it to the summit will be accomplished by means of a lift. A permanent meteorological observatory wil be erected on the summit, the Railway Commission providing 100,000 francs towards its establishment, and 6000 francs annually towards its maintenance.

A preliminary report on the determination of the mass of a cubic decimetre of water is published to the *Procès verbaux* of the French International Committee of Weights and Measures, by Dr. C. E. Guillaume. The method adopted was essentially the same as those used in previous determinations, consisting in the observation of the weight of water displaced by a body the dimensions of which were carefully measured. Dr. Guillaume employed cylindrical forms, and from the mean of observations made with five cylinders of varying dimensions, the specific mass of water at 4° was found to be 0·999936.

Some observations on the influence of heating on the passage of electricity through rarefied gases are contributed to *Wiedemann's Annalen* by Herr J. Stark. When the space between the electrodes is just sufficient to prevent a discharge from taking place, the introduction of an incandescent body causes the discharge owing to the resistance of the gas decreasing on its being heated. Similarly the fall of resistance caused by the use of an incandescent kathode enables a comparatively small electromotive force to produce a luminous discharge. Herr Stark has passed on to consider the case where the electromotive force is about 100 volts. higher than that which would just suffice for the discharge. In this case it is found that by the introduction of a white-hot body all luminosity may be made to cease, the electric discharge being dark. This effect the author attributes to the heated gas having lost its power of phospherence during the passage of electricity, a transformation which, moreover, is to be accounted for by the gas becoming dissociated by the action of heat, coupled with the property that no phosphorescence occurs in a dissociated gas.

A reinvestigation of the question as to whether the viscosity of dielectric liquids is affected by a uniform electrostatic field is given by Dr. G. Pacher and Dr. L. Finazzi in the *Atti del R. Istituto Veneto*, lix. 2. Contrary to the results of Duff and Quincke, no variations in the viscosity were observed to be caused by the electric field. The method of experimenting was to measure the time of efflux through a pair of liquid condensers, and the liquids operated on were distilled water, ethyl-alcohol, ether, benzol, oil of turpentine and sulphide of carbon. The times of efflux vary slightly in individual experiments, owing to errors of observation ; but there is no difference between the means of the results for charged and uncharged condensers beyond what is naturally attributable to accidental causes.

The chief theorem of Lie's theory of continuous groups receives discussion at the hands of Mr. Stephen Elmer Slocum in the pages of the *Proceedings* of the American Academy of Arts and Sciences. The theorem in question is that a particular system of *r* independent infinitesimal transformations generates a continuous group with *r* parameters, that is, a group with *r* parameters in which each transformation can be generated by an infinitesimal transformation of the group. Prof. Study, however, has shown that, notwithstanding the infinitesimal transformations of the special linear homogeneous group satisfy Lie's criterion, nevertheless, not every transformation can be generated by an infinitesimal transformation of this group. Consequently Lie's theorem is subject to certain limitations. So far as Mr. Slocum is aware, the precise nature of the error has not been pointed out, and to show wherein it consists is the object of his paper. The author carries out for a particular group the successive steps in Lie's demonstration of the first fundamental theorem of his theory, upon which the chief theorem, namely the second fundamental theorem, rests. At a certain point in this demonstration an assumption is made in which Lie's error consists.

In the *Meteorologische Zeitschrift* for January, Dr. H. Hergesell continues his valuable discussion of the results of recent international balloon ascents. In this paper he discusses the effect of the density of the air upon the coefficient of inertia of a ventilated thermometer. With respect to the ascents of unmanned balloons, he finds that the registering thermometers, although they may be properly protected against solar radiation, only give accurate results during the ascent, and that even these results require a two-fold correction, owing to the radiation of the parts of the balloon in the vicinity of the thermometers and to the sluggishness of the instruments. The observations during the descent must be used with great caution, as in many cases the thermometers are coated with a deposit of aqueous vapour, which obstructs their proper working. With respect to the temperature conditions of the higher air-strata, the observations up to an altitude of 10,000 metres show in all cases a decrease with height of 40° C. or more. In no case is a decrease in the magnitude of the variation shown with increasing altitude. The various ascents show a great mobility of temperature according to locality; at the same hour differences of 30°–40° C. have been recorded in the higher strata which are only a few hundred kilometres apart.

MR. R. D. WARD records in the *Boston Medical and Surgical Journal* some observations on the condition of the air of an artificially heated room as regards moisture, during winter months. His observations show that the atmosphere of a room is often drier than that of many desert regions.

THE Latian earthquake of July 19, 1899, is described by Dr. A. Cancani in the last *Bollettino* of the Italian Seismological Society. At Frascati, Marino and Grottaferrata, much damage was caused by the shock, and several interesting examples are described. The record obtained by the great seismometrograph at Rocca di Papa shows two very distinct phases before the principal movement began, the first of which Dr. Cancani considers as responsible for the prior effects on animals, and the second for the preliminary sound heard by man. The shock was felt over an area of about 80,000 sq. km., and was also recorded by a seismometrograph at Catania, the waves having travelled there with a mean velocity of 5·5 km. per second. Earlier on the same day occurred the explosion of Etna, and the rainfall for the seven previous weeks was nearly three times the average for the time of year.

IT is but too seldom that our military officers stationed in remote districts devote some of their spare time to the investigation of the natural history of the surrounding country, and we have therefore the more pleasure in welcoming a paper in the *Journ. Asiatic Soc. Bengal*, for 1899, by Capt. A. H. MacMahon (son of General MacMahon), on the fauna of the Gilgit district. The author has added the Ermine to the list of Gilgit mammals, and has also shown that the Bharal (*Ovis nahura*) extends westward into the Hunza valley.—To the same journal Mr. de Nicéville and Major Manders contribute a paper on the butterflies of Ceylon, containing a complete list of the fauna.

ABNORMAL colour-variations in British Lepidoptera forms the subject of a paper (illustrated by a coloured plate), by Mr. Frohawk, in the April number of the *Entomologist*. Very curious is a brown variety of the Tiger-moth, in which the blue spots on the hind wings are, however, retained. In this communication the author very properly refrains from giving names to such individual "sports." Not so a writer in the April number of the *Journal of Conchology*, who proposes to designate a white snail from Gibraltar, *Helix marmorata*, var. *alba*. In view of the present employment of trinomialism to indicate geographical races, such a usage is quite unjustifiable.

THE third of the Liverpool Marine Biological Committee's Memoirs on typical British Marine Animals and Plants is to hand, under the title of "Echinus," by Mr. H. C. Chadwick. It is an admirably written and beautifully illustrated "booklet"; but if the editor wishes to attract popular attention to this series, would it not be better if he used the names "Cockle" and "Sea-urchin" in place of "Cardium" and "Echinus"?

THE issue of the *Proceedings* of the Philadelphia Academy of January 2 contains an interesting paper, by Mr. L. Stone, on the Birds and Mammals collected by a recent expedition to Point Barrow, Alaska. It is stated that, so far as the antlers are concerned, the Barren-ground Caribou of Alaska is indistinguishable from the Greenland Caribou (or Reindeer), although the two are generally regarded as distinct races.

PROF. SYDNEY YOUNG, F.R.S., contributes to the April number of *Good Words* an appreciation of the life and work of Dr. W. H. Perkins, F.R.S. The article is the third of a series, entitled "Present Day Leaders of Science."

THE first number of a new quarterly—*The Humane Review*—has been received. Mr. G. Bernard Shaw writes pleasantly upon nothing in particular, under the title of "The Conflict between Science and Common Sense." He seems to be grieved because science is progressive, and that cherished beliefs of yesterday are disturbed by discoveries of to-day. Mr. W. H. Hudson laments the disappearance of the Furze Wren, or Dartford Warbler, from most parts of England. Other articles deal with various ethical and humanitarian subjects.

THE discovery of Dr. Cohen that metallic tin can exist in two modifications, white and grey, only one of which is stable at a given temperature, led him to study the velocity charge of white tin into grey tin (see NATURE, p. 330). It was found that the velocity for the temperature interval, 10° to 20° C., was extremely small, so small that years would be necessary to prove the change. Dr. Cohen now quotes (*Zeitschrift für Physikalische Chemie*, **23**, 59) some remarks of Dr. Gowland upon the condition of a pewter vase of date about 350 A.D., from which it would appear that the change into grey tin was practically complete after 1500 years, a conclusion confirmed by a dilatometric study of some of the material.

THE field of research opened up by M. Becquerel by his discovery of the radiation from uranium salts, is now being rapidly enlarged by many workers. Besides the radio-active elements, polonium and radium, discovered by M. and Mme. Curie, particulars are given by M. A. Debierne, in the *Comptes rendus*, of another element having similar properties, but belonging to the iron group of metals. It is extracted, like polonium and radium, from the residues from the treatment of pitchblend, and is named by the discoverer actinium. As is the case with all these elements, they have not been obtained even in an approximately pure state, the most that can be done being to concentrate the radio-active material in certain precipitates. Thus the chemical reactions of the most active actinium material so far obtained, and also the spectroscopical examination, show that the product is an impure thorium. It can be shown, however, that the effects observed are due neither to polonium nor radium.

THE additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Cynocephalus porcarius*, ♂), a Vervet Monkey (*Cercopitheeus lalandii*, ♀), two Yellow-billed Ducks (*Anas undulata*) from South Africa, presented by Mr. J. E. Matcham; a White-collared Mangabey (*Cercocebus collaris*, ♀), a Ludio Monkey (*Cercopithecus ludio*, ♀) from West Africa, presented by Mr. D. J. Jones; two Bonnet Monkeys (*Macacus sinicus*, ♂ ♀) from India, presented by Mr. T. W. B. Lindgren; a Fennec Fox (*Canis cerdo*, ♂) from North Africa, presented by Dixon Bey; a Marabou Stork (*Leptoptilus crumeniferus*) from Africa, presented by Mr. Justice H. G. Kelly; a Wedge-tailed Eagle (*Aquila audax*) from Australia, presented by Colonel R. B. Ingram; four Spot-billed Ducks (*Anas poecilorhyncha*) from India, presented by Sir Ed. Chas. Buck, K.C.S.I.; a Common Duiker (*Cephalophus grimmi*, ♀) from South Africa; a Small clawed Otter (*Lutra leptonyx*), a Bengal Monitor (*Varanus bengalensis*) from India; a Common Hare (*Lepus europoeus*), British; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, deposited; two Squirrel-like Phalangers (*Petaurus sciureus*), born in the Gardens.